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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/134,272	08/14/1998	ZIFEI PETER WANG	003239.P010	7801

7590 06/21/2004  
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EXAMINER

ARMSTRONG, ANGELA A

ART UNIT	PAPER NUMBER
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2654

DATE MAILED: 06/21/2004

27

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/134,272

Applicant(s)

WANG, ZIFEI PETER

Examiner

Angela A. Armstrong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 29 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 4,6,9,11,12,15-17,22,23 and 25-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 4,6,9,11,12,15-17,22,23 and 25-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

#### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 29, 2004 has been entered.

#### ***Response to Amendment***

2. The Declaration filed on March 29, 2004 under 37 CFR 1.131 is sufficient to overcome the Nicholls et al reference (US Patent No. 6,223,154).

#### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 4, 6, 9, 11-12, 15-17, 22-23, and 25-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Polcyn et al.* (US Patent No. 5,311,588) in view of *Modi et al.* (US Patent No. 6,125,345) in further view of *Xie* (US Patent No. 5,841,385).

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5. Regarding claims 4, 6, 9, 11-12, 15-17, 22-23, and 25-37, *Polcyn et al.* discloses a method and system for determining the progress of a calling connection by determining signal transitions from tone to silence, silence to speech, etc. In the Abstract, at col. 1, lines 59-66 continuing to col. 2, lines 1-33, col. 7, lines 49-67 continuing to col. 8, lines 1-25, col. 16, lines 20-37, and col. 16, lines 49-62 *Polcyn et al.* suggests/teaches a method of calculating a first ratio level of said audio signals and an average power level of signals (determining a peak-to-mean ratio) and comparing...ratio levels to a set of criteria to determine the line status (comparing the peak-to-mean ratio to a selected threshold to determine whether a frame represents a voice signal). At col. 2, lines 21-22 *Polcyn et al.* teach that an essential feature of the invention is determining the difference between noise and a voice.

*Polcyn et al.* does not disclose that the ratios used in the detection method are normalized. However, refer to *Modi et al.* who teach a system, which uses confidence measures for performing classification and verification. *Modi et al.* teach confidence measures of likelihood scores and likelihood ratios at col. 4, lines 15-16. At col. 9, lines 32-36, *Modi et al.* teach normalizing the confidence scores based on their dynamic ranges. As such, the claimed normalization calculations using the maximum averaged minus minimum averaged peak-to-mean ratio for the current audio frame constitutes dynamic range normalization.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the system of *Polcyn et al.* to normalize the peak-to-average ratios for the purpose of providing verification of the noise/voice determination as suggested by *Modi et al.*

The combination of *Polcyn* and *Modi* does not teach using short-term averaged energy, long-term averaged energy, etc., in the voice/speech detection process. However, refer to *Xie* who

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discloses a system and method which implements a voice activity detector for an audio system which calculates long-term average energy and short-term average energy and determines if a ratio of the two exceed a threshold value (col. 3, lines 34-59; col. 5, line 20-col. 7, line 65). *Xie* teaches the system more accurately estimates the average energy of the signal, which advantageously makes the system more stable and enables the voice activity detector to more accurately distinguish between noise and voice activity (col. 3, lines 45-49).

Therefore, it would have been obvious to one of ordinary skill at the time of invention to modify the system of *Polcyn et al* and *Modi et al* to implement the averaged energy determinations and calculations, as taught by *Xie*, for the purpose of more accurately estimating the average energy of the signal, so as to make the system more stable and enables the voice activity detector to more accurately distinguish between noise and voice activity, as taught by *Xie*.

6. Claims **5 and 24** are rejected under 35 U.S.C. 103(a) as being unpatentable over *Polcyn et al*, in view of *Modi et al*, and *Xie* as applied to claims 6 and 22 above, and further in view of *Janiszewski et al.*, (US Patent No. 5,657,422).

7. Regarding claims **5 and 24**, “conducting weighted average,” it is noted that *neither Polcyn et al*, *Modi et al*, nor *Xie* disclose weighted averages. *Janiszewski* discloses a voice activity detection system that estimates energy and noise of a signal. Specifically at col. 6, lines 1-8 *Janiszewski* disclose using a smoothing constant in calculating signal estimates and setting the smoothing constant to provide for acceptable frame averaging.

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Therefore, to the extent that neither *Polcyn et al*, *Modi et al*, nor *Xie* disclose weighted averaging, it would have been obvious to one of ordinary skill at the time of invention to modify the voice detection of system of *Polcyn et al*, *Modi et al*, and *Xie* to conduct a weighted average by using a smoothing constant for the purpose of providing acceptable frame averaging as taught by *Janiszewski et al*.

#### ***Response to Arguments***

8. Applicant's arguments with respect to claims 4, 6, 9, 11-12, 15-17, 22-23, and 25-27 have been considered but are moot in view of the new ground(s) of rejection.

#### ***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela A. Armstrong whose telephone number is 703-308-6258. The examiner can normally be reached on Monday-Thursday 7:30-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (703) 305-9645. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Angela A. Armstrong  
Examiner  
Art Unit 2654

AAA  
June 11, 2004

  
RICHEMOND DORVIL  
SUPERVISORY PATENT EXAMINER